MANUAL

[JAX : KRYOSTATIC]
- SPECTRUM FREEZE & SHIFT -

Universal AudioUnit (AUv3)
for iOS and all Apple silicon platforms

JAX
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You are welcome to join us.

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https://audio.digitster.com/manuals

MANUAL

JAX

FRONTIER SERIES

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KRYOSTATIC

KRYOSTATIC

exclusive release song (for jax kryostatic):

GHOSTS IN THE STROBE

powered by JAX photones engine

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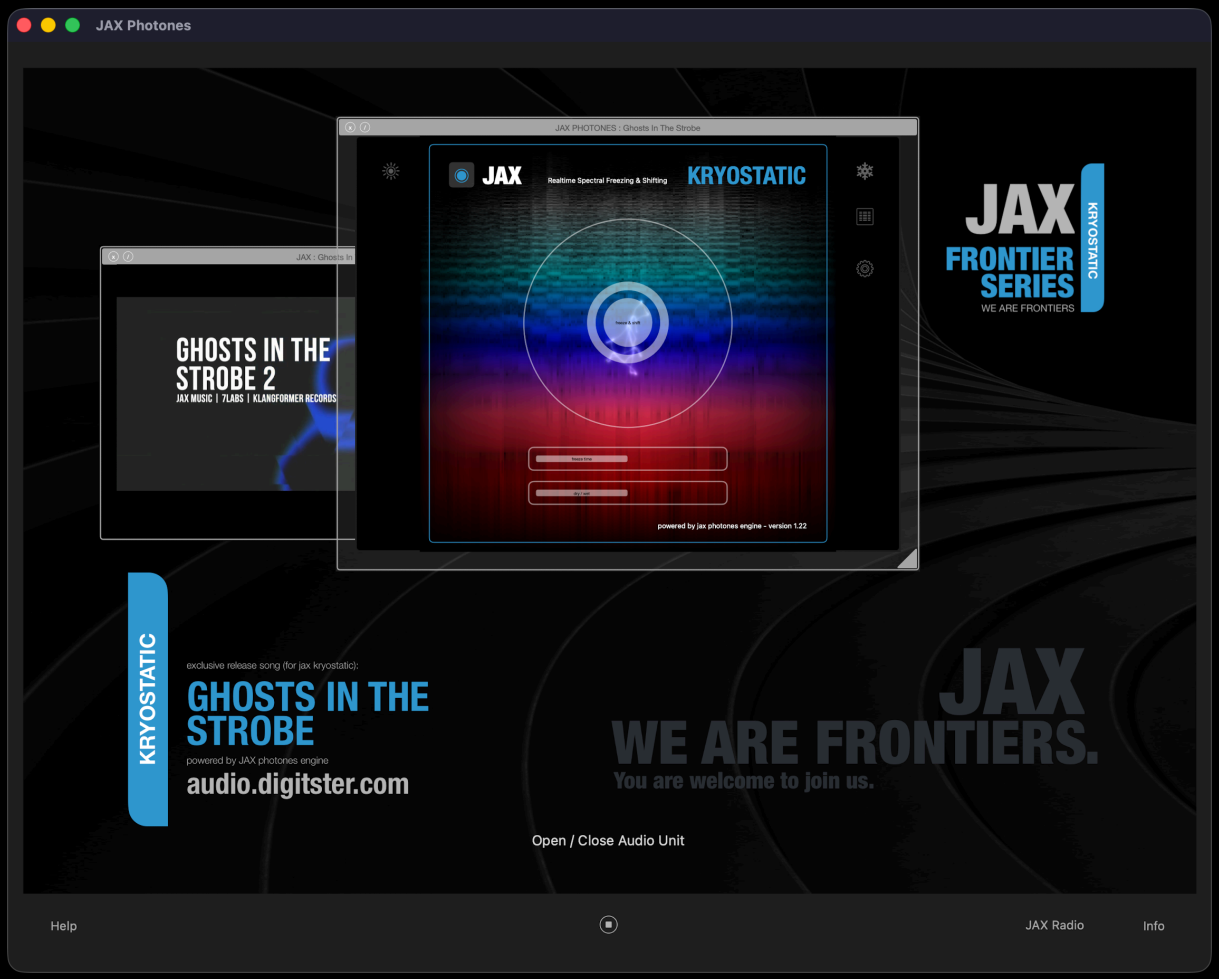

INTRODUCTION

JAX Kryostatic is a creative sound design tool and will temporarily freeze the frequency spectrum of any audio stream in real-time. The resulting tone is based on a resynthesis of the spectral parts, extracted from the input stream. A special implementation allows to shift the frozen spectrum freely up and down (to extreme amounts).

This simple effect is internally highly complex, uses latest performance technologies based on a modified phase vocoder, translated natively to Apples accelerate framework for best performance. Apple Metal performance shaders are used to generate the visuals directly on the GPU via direct shared memory concept between the AudioUnit's DSP kernel and the default system Metal device.

Born as part of a research project for a multi-resolution phase vocoder, 1024 stereo oscillator resynthesizer, 128-band chromatic bandpass processors and all such, it was realized with advanced floating point vector processing and directly visualized with native performance shaders, processing on the GPU, this project is just a starting point for further products.

The project demonstrates impressively what is possible with Apples native performance infrastructure rather than using common (legacy) audio development kits and frameworks with loads of overhead in performance, bandwidth and memory usage.

We do not use any 3rd party frameworks for any of our developments. In most cases, the size of the core audio unit kernel is therefore just a few MB, including the debugging symbols.

SO WHAT IS AN ‚AUDIOUNIT' ?

If you are new to the world of music production software, you might wonder how to open and use JAX plugins.

This software is not designed to be run as a standard standalone application, loading songs directly. Instead, it is an "AudioUnit Extension" (specifically, an Apple framework AUv3 plugin). You can think of it as a specialized piece of high-end equipment that needs to be installed inside a modern virtual kitchen — a so-called "Host Application."

To experience the musical frequency analysis and the fluid 60-FPS visual design, you must load the plugin inside a compatible audio host application, installed on your device.

POPULAR COMPATIBLE HOSTS INCLUDE (i.e.):

- AUM (The ultimate audio routing centerpiece)
- Steinberg Cubasis (Complete mobile music production studios)
- Logic Pro or Cubase (Professional desktop and tablet DAWs)

GETTING STARTED IN 5 SIMPLE STEPS:

1. Download and install the plugin from the App Store.
2. Open your preferred audio host application (e.g., AUM or GarageBand).
3. Create an audio track or instrument channel where your music is playing.
4. Look for the effects routing section, usually labeled "Audio Unit Extensions" or "AUv3."
5. Select "JAX Kryostatic" from the list.

The plugin window will immediately open inside your host application. Your audio data will now flow seamlessly into our optimized vector engine via shared memory, and the melodies will start floating across your screen in perfect real-time synchronization.

MANIFESTO

WE ARE FRONTIERS.

For nearly six years, we have traversed the landscape of the App Store, mapping the digital wilderness of mobile audio. We have watched the scene evolve, but we have also watched it lose its way. The market has become saturated with the sterile, the mathematical, and the absurd — an endless parade of noise generators that celebrate chaos but forget the soul. Algorithms have grown colder and marketing driven, screens have become filled with useless statistical curves, and the deep, primal emotional connection to what we create has been buried under a mountain of digital dust.

We say: Enough!

"We are Frontiers" is our line in the sand. It is a deliberate turning away from the meaningless noise and a passionate return to what truly matters: pure sound, timeless harmony, and above all — beautiful MUSIC.

When you open this plugin, you are not looking at a mere statistical calculator. You are looking at a living, breathing multimedia experience. Our unique integration of pure vDSP vector power and raw Metal GPU compute processing is designed with a single, uncompromising goal: to make the invisible visible. To let your melodies breathe, float, and flow across the glass of your screen like raindrops reflecting the light of a new dawn — while leaving your system fully unburdened to do what it was meant to do: CREATE.

We do not just build software. We explore new horizons. We create art to help you create art.

Welcome to the borderlands of sound. Welcome to the frontiers.

YOU CAN BE FRONTIER TOO.

PARAMETERS

All our AudioUnits come with an integrated parametric user interface. These parameters can be edited and automated with host applications. The JAX Kryostatic parameters have following structure:

Common:

kDisplayContrast,
Traditionally all of our AudioUnit interfaces have a ‚contrast feature'. This was even available long before Apple has introduced ‚dark mode'. With this mode you can continuously adjust screen

contrast up to total inversion. It is even active now for all Metal shaders.

kBypass,
This Parameter allows to bypass the internal audio processing by direct automation for instance.

kDryWet,
The global mix parameter between input and processed audio stream is implemented into all of our plugins, if appropriate.

kGainIn,
The input gain is adjustable separately and also can be automated. This will be applied before any DSP becomes active on the audio stream.

kGainOut,
The input gain is adjustable separately and also can be automated. It is the final stage and even comes after the final limiter.

kFinalLimiter,
An automatic final limiter is switchable on or off, i.e. to prevent unacceptable signal bursts, that may be caused by adjusting parameters inside the signal flow.

kMIDIOut,
Some plugins have an integrated YX MIDI Pad and the output of MIDI controller data can be switched on or off here.

Specific:

kKryoActive,
Kryo can be switched on or off with this parameter. This also suspends the GPU rendering engine.

kKryoFreeze,
The parameter ‚freeze' does the main work. It is optimized for usage in real-time or per automation events.

kKryoShift,

If ‚freeze' is active, this allows to shift the frozen spectrum in connection with the following 2 parameters up and down.

kKryoTransposeUp,
You can assign, how many octaves the ‚shift' amount covers in both directions. On the user interface just shift up by sliding up while freeze is pressed.

kKryoTransposeDown,
You can assign, how many octaves the ‚shift' amount covers in both directions. On the user interface just shift down by sliding down while freeze is pressed.

kKryoTime,
Kryostatic is optimized for operating in realtime. The longest freeze time is active will the full amount of this parameter. Shorter time will produce soft ice.

kKryoQuality,
The internal quality of the Kryostatic spectral effect.

kKryoInterpolation,
If interpolation is on, the values between kryo time intervals will be continuously interpolated.

kKryoSpeed,
This parameter adjusts the floating speed of the display.

kKryoIntensity,
The intensity of the kryo display can be adjusted wilt this parameter.

MIDI IMPLEMENTATION

Our AudioUnits are configured with MIDI support. Plugins with parametric interfaces do have an internally routed MIDI implementation. You can assign MIDI Controllers to most of the main para-

meters by sliding the numbers of the controller to a controller number you want. If the unit receives MIDI messages from the host, the parameters will be automated with this.

If there is also an XY control pad implemented into the plugin, the controllers directly will correspond to the numbers you edit here.

Example : If you assign MIDI controller Nr. 10 (pan) to ‚Output Pan' and MIDI controller Nr. 7 (volume) to ‚Output Gain' of the plugin inside the parametric editor, you also may assign the same controllers to the YX Pad and this way everything is automated with MIDI controllers internally. Please note that MIDI controllers have traditionally a limited 7bit resolution.

Please note, that not all parameters may make sense to be automated at all. MIDI Controllers also can be sent out, if the host application supports it.

THE SONG

We are musicians at very first. There is not much sense in releasing generative noise tools at masses that do not even have any musical aspect as seen currently flooding the market.

So we will release a unique song with each AudioUnit. The song ‚Ghosts In The Strobe' was written for JAX Kryostatic. Feel free to take a listen to our complete song list at https://audio.digitster.-com/music .

With the latest update we added 2 more song versions to the app, which can be listened to one after another by repeatedly pressing the play button or just letting playing everything thru the AudioUnit in a loop.

SUPPORT

If you have questions or new ideas, please contact us via mailto:support@digitster.com .